

REMARKS/ARGUMENTS

In this response, claims 1, 10, 12, 38, 43, 54, and 81 are being amended, claims 28, 29, 73, and 74 are being canceled, and no claims are being added. Therefore, claims 1-7, 9-27, 30-48, 50-72, 75-81, and 83-86 will remain pending in the application after entry of this amendment. Reconsideration and allowance of this application is respectfully requested in view of the amendments above and the remarks below.

Claim 1 is being amended to recite in connection with the generating clause that the one or more symbols “includ[e] a first symbol indicating a first respiration characteristic and a second symbol indicating a second respiration characteristic different from the first respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively”. Support can be found e.g. in original claims 28 and 29, and in connection with FIGS. 17A-B. Independent claims 38 and 81 are being amended similarly. No new matter has been added.

Some of the dependent claims are being amended for better consistency with the amended base claims. Claim 10 is being amended to specify that the first respiration characteristic is a characteristic associated with disordered breathing. Claim 12 is being amended to specify that the first symbol is selected based on determining a type of the disordered breathing. Claim 54 is being amended to specify that the respiration processor “is further configured to distinguish between different types of disordered breathing”, and the first respiration characteristic “comprises a type of disordered breathing selected from the different types of disordered breathing”. Support can be found e.g. in connection with FIGS. 13 and 14. No new matter has been added.

Claim 43 is being amended to correct a typographical error. No new matter has been added.

Claim Rejections – 35 U.S.C. § 103

The Office Action rejected claims 1-4, 6-7, 9-12, 16-17, 22-24, 28-29, 30-38, and 73-74 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application

Publication US 2004/010102814 (Sorenson et al.), hereinafter “Sorenson”, in view of U.S. Patent 5,860,918 (Schradi et al.), hereinafter “Schradi”. This rejection cannot be sustained.

Claim 1 has been amended to specify in connection with the “generating a marked respiration waveform” that the one or more symbols include “a first symbol indicating a first respiration characteristic and a second symbol indicating a second respiration characteristic different from the first respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively”. Although Sorenson shows a respiration waveform (184) in FIG. 4 thereof and Schradi shows a respiration waveform (see respiration channel 404) in FIG. 4 thereof, *neither* Sorenson nor Schradi teach generating a *marked* respiration waveform in which even one symbol indicating a respiration characteristic is aligned relative to the respiration waveform to indicate a time of occurrence of the respiration characteristic. Such a feature was claimed in original (and now canceled) claims 28 and 29, which the Office Action alleged (see pages 10-11 of the Office Action) was taught in Schradi by item 506 appearing in FIGS. 5A-5D. Applicants respectfully submit that this is a mischaracterization of Schradi. In contrast to FIG. 4 of Schradi, which is clearly intended to depict waveforms that are generated, and then displayed on a display device, FIGS. 5A-5D of Schradi are described only as being used for reference in describing Schradi’s rules for setting thresholds and rules for triggering events. See Schradi at column 10, lines 21-23. In other words, FIGS. 5A-5D are merely patent drawings used to describe for the reader Schradi’s threshold/triggering rules. Schradi includes the “event trigger 506” in FIGS. 5A-5C only to explain the threshold/triggering rules, not to teach that a marked waveform (e.g. the waveform labeled 504 together with the arrow labeled 506) is generated. The reader of Schradi would therefore not interpret FIGS. 5A-5D as teaching that any marked waveforms are generated. It is also noted that the waveform in these figures is described as a heart rate waveform, not a respiration waveform. See Schradi at column 11, lines 19-33.

Since neither Sorenson nor Schradi teach generating a marked respiration waveform in which even one symbol indicating a respiration characteristic is aligned relative to the

respiration waveform to indicate a time of occurrence of the respiration characteristic, their combination cannot teach the features of claim 1 quoted above, which are incorporated through dependency in claims 2-4, 6-7, 9-12, 16-17, 22-24, and 30-37. Failing to teach all elements of these claims, the combination of Sorenson and Schradi cannot render these claims obvious under 35 U.S.C. §103(a), and the rejections should be withdrawn.

Independent claim 38 is being amended in a manner similar to claim 1, specifying in connection with the waveform generator that the symbols include “a first symbol indicating a first respiration characteristic and a second symbol indicating a second respiration characteristic different from the first respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively”. Since this feature is absent from both Sorenson and Schradi, the rejection under 35 U.S.C. §103(a) of claim 38 cannot be sustained and should be withdrawn.

The Office Action also rejected claims 5, 13-15, and 25-27 under 35 U.S.C. §103(a) as being unpatentable over Sorenson in view of Schradi, and further in view of U.S. Patent 5,540,732 (Testerman et al.), hereinafter “Testerman”. The Office Action acknowledged (see p. 13 thereof) that Testerman fails to teach detecting a triggering event, generating a marked respiration waveform using the respiration waveform in response to the triggering event, and using one or more symbols indicating the one or more characteristics associated with the respiration.

The rejected claims 5, 13-15, and 25-27 all depend directly or indirectly from claim 1 and incorporate all its elements. The shortcomings of Testerman acknowledged in the Office Action make it clear that Testerman cannot make up for the shortcomings of Sorenson and Schradi explained above with regard to the elements of claim 1. Therefore, the rejection under §103 of claims 5, 13-15, and 25-27 cannot be sustained and should be withdrawn.

The Office Action also rejected claims 1, 5, 10-12, 14-17, and 25-27 under 35 U.S.C. §103(a) as being unpatentable over Testerman in view of U.S. Patent Application Publication US 2002/0193839 (Cho et al.), hereinafter “Cho ‘839”. The Office Action cited paragraphs 20 and 68 of Cho ‘839, as well as FIGS. 6 and 7, claim 23, and CPU 204 which communicates with programming unit “112” [sic: 114], referring to Cho ‘839’s discussion of forming a histogram of the deviations of minute ventilation values, selecting a minute ventilation value between peaks in the histogram, and storing the histograms in the CPU 204, and concluding that “[t]he present invention claims that the marked waveform is generated but not displayed, and the system of Cho ‘839 is capable of performing the same ([0068])”. This rejection cannot be sustained.

First, histograms are not waveforms, and generating a histogram is not generating a waveform. Second, although Cho ‘839’s FIG. 6 depicts minute ventilation standard deviation values “MV STDEV SHORT” and “MV STDEV LONG” as a function of time, and FIG. 7 depicts the latter value as a function of time, with descriptive labels (e.g. “sleep onset”, “MV threshold”) being shown in both figures, the labels are nowhere indicated to be anything other than labels used for the purpose of explaining the operation of the device to the reader of the patent. See e.g. paragraphs 37, 38, 110, 111, 112, 113. In other words, the labeling used in FIGS. 6 and 7 is solely for purposes of describing the operation of the device to the reader, and nowhere does Cho ‘839 state or imply that a labeled or marked respiration waveform is generated.

Since neither Cho ‘839 nor Testerman disclose generating a marked respiration waveform, much less a waveform in which even one symbol indicating a respiration characteristic is aligned relative to the respiration waveform to indicate a time of occurrence of the respiration characteristic, their combination cannot teach the features of claim 1 quoted above, which are incorporated through dependency in claims 5, 10-12, 14-17, and 25-27. Failing to teach all elements of these claims, the combination of Testerman and Cho ‘839 cannot render these claims obvious under 35 U.S.C. §103(a), and the rejections should be withdrawn.

The Office Action also rejected claims 1, 10, 12-21, 38-42, 44, 46-48, 52-64, 67, 71-72, 78, 80-81, 83-84, and 86 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 6,641,542 (Cho et al.), hereinafter “Cho ‘542”, in view of Cho ‘839. The Office Action acknowledges on page 16 thereof that Cho ‘542 fails to teach detecting a triggering event and generating a marked respiration waveform using the respiration waveform in response to the triggering event, and using one or more symbols indicating the one or more characteristics associated with the respiration.

The shortcomings of Cho ‘542 acknowledged in the Office Action make it clear that Cho ‘542 cannot make up for the shortcomings of Cho ‘839 explained above with regard to the elements of claim 1. Neither Cho ‘542 nor Cho ‘839 teaches generating a marked respiration waveform, much less one in which one or more symbols include “a first symbol indicating a first respiration characteristic and a second symbol indicating a second respiration characteristic different from the first respiration characteristic, the first and second symbols being aligned relative to the respiration waveform to indicate times of occurrence of the first and second respiration characteristics respectively” as set forth in claim 1 and included by dependency in its dependent claims. The combination of Cho ‘542 and Cho ‘839 cannot logically teach an element that cannot be found in either reference. Regarding the other independent claims 38 and 81, they specify in some form a device that generates a marked respiration waveform using language similar to that quoted from claim 1, which is plainly not taught in either Cho ‘542 or Cho ‘839 for similar reasons. Therefore, the rejection under §103 of claims 1, 10, 12-21, 38-42, 44, 46-48, 52-64, 67, 71-72, 78, 80-81, 83-84, and 86 cannot be sustained and should be withdrawn.

The Office Action also rejected claims 43, 45, 79, and 85 under 35 U.S.C. §103(a) as being unpatentable over Cho ‘542 in view of Cho ‘839, and further in view of U.S. Patent 6,770,022 (Mechlenburg et al.), hereinafter “Mechlenburg”. The Office Action cites various passages of Mechlenburg referring to magnetic stimulation of muscles for the diagnosis and relief of a breathing disorder, signals indicative of the condition of the patient

can be provided to a display device, using the magnetic stimulating system in conjunction with a pressure support system that applies positive air pressure at the mouth/nose of the patient, and the onset of an upper airway event can be detected using an airway sensor.

Nowhere does the Office Action assert that Mechlenburg teaches generating a marked respiration waveform. When combined with Cho '542 and Cho '839, which also fail to teach generating a marked respiration waveform, the resulting combination does not teach every element of base claims 38 and 81 for the reasons explained above, and it cannot render their respective dependent claims unpatentable under §103. The rejection of claims 43, 45, 79, and 85 therefore cannot be sustained and should be withdrawn.

To the extent Applicants have not responded to any characterization by the Examiner of the asserted art or of Applicants' claimed subject matter, or to any application by the Examiner of the asserted art to any claimed subject matter, Applicants wish to make clear for the record that any such lack of response should not be interpreted as an acquiescence to such characterizations or applications. A detailed discussion of each of the Examiner's characterizations, or any other assertions or statements beyond that provided above is unnecessary. Applicants reserve the right to address in detail any such assertions or statements in future prosecution.

Conclusion

For the foregoing reasons, the application is submitted to be in condition for allowance, the early indication of which is earnestly solicited. If the Examiner believes it necessary or helpful, the Examiner is invited to contact the undersigned attorney to discuss any issues related to this case.

Respectfully submitted,

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